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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,129	01/20/2004	Ronald Frank	PCC124	8835
32047	7590	06/16/2005		
GROSSMAN, TUCKER, PERREAULT & PFLEGER, PLLC 55 SOUTH COMMERICAL STREET MANCHESTER, NH 03101			EXAMINER HUANG, SIHONG	
			ART UNIT	PAPER NUMBER
			2632	

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/761,129

Applicant(s)

FRANK ET AL.

Examiner

Sihong Huang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/23/04.
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-14, drawn to a seat buckle sensor assembly for sensing and determining the state of a seat buckle, classified in class 340, subclass 457.1.
  - II. Claims 15-17, drawn to a method of producing/assembling a sensor, classified in class 29, subclasses 896.8, 896.9 and 897.
  - III. Claims 18-20, drawn to a method of forming a sensor with a printed circuit board, classified in class 29, subclass 825.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I, II and III are unrelated. Invention I is directed to the use of a seat buckle sensor in a seat buckle. Invention II is directed to the detailed steps and arrangement of producing/assembling a part of a sensor. Invention III is directed to the connection on a printed circuit board to form a sensor.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with Mr. Donald J. Perreault on June 7, 2005, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-

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14. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 15-20 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Claim Objections***

7. Claim 13 is objected to because of the following informalities:

In claim 13, line 8, "senor" should read as -- sensor --.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 3, 4 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, line 3, "said Hall Effect sensor" lacks antecedent basis.

In claim 4, line 2, "said housing" causes confusion because it is unclear to which housing it refers, sensor housing or shield housing.

In claim 8, line 9, "said magnetic shield" lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Höfelsauer (US 6,278,347 B1).

**Regarding claims 1 and 5**, Höfelsauer discloses a seat buckle sensor assembly (see Figs. 1 and 2) comprising: a shield (12 and/or 17, see Fig. 1); a sensor housing (the form contains sensors 20 and 30, see Fig. 1, col. 4, lines 1-2 and col. 3, lines 14-17) coupled to said shield (clearly shown in Fig. 1), said sensor housing comprising a sensor (20 or 30) for providing an output in response to magnetic flux imparted thereon (col. 3, line 63 and col. 2, lines 40-42); and a magnet (42) disposed on a lock pin (44) of a seat belt buckle (col. 4, lines 10-11), said magnet (42) disposed adjacent said sensor (either one of sensors 20 and 30) when said lock pin (44) is in one of a locked and an unlocked state to cause a first output of said sensor, said magnet disposed away from said sensor (the same one of sensors 20 and 30) when said locked pin is in the other of a locked and an unlocked state, to provide a second output of said sensor, said first output being different from said second output (col. 2, lines 23-52).

**Regarding claim 4**, Höfelsauer discloses that the shield comprises a housing and a cover (17 and 12), said housing comprising an opening (the recess in housing 17 containing the

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sensors and magnet 42 and end portion of lock pin 44, see Fig. 1) adapted to receive a portion of said lock pin therethrough (clearly shown in Fig. 1).

**Regarding claim 6**, the claimed limitation is clearly shown in Fig. 1 and disclosed in col. 2, lines 58-61.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2, 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Höfelsauer (US 6,278,347 B1).

**Regarding claim 2**, Höfelsauer does not disclose a stepped surface in the sensor housing. Since the lock and unlock positions of the lock pin 44 with magnet 42 are defined in a “L” shape (see Fig. 2), it would have been obvious to form a corresponding shape of the sensor housing in order to accurately sense the movement of the lock pin 44 and magnet 42 and which housing would have a stepped surface.

**Regarding claim 3**, Höfelsauer does not disclose a rubber sheet disposed in the sensor housing to maintain the sensor position. Maintaining the sensor position in the sensor housing is a necessary step for an accurate sensor device. Whether or not a rubber sheet is utilized for such maintaining purpose is merely a matter of design choice and an obvious modification to the apparatus of Höfelsauer.

**Regarding claim 7**, although Höfelsauer does not disclose a crush rib on the exterior of the sensor housing, providing such to secure and protect the sensor is an obvious modification to the apparatus of Höfelsauer.

14. Claims 8-10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Höfelsauer in view of Katsuya et al. (JP 2001-224408) or Sasaki (US 4,943,087).

**Regarding claims 8, 9, 13 and 14**, Höfelsauer discloses a seat buckle assembly (Fig. 1) comprising: a seat buckle (10) including a seat buckle sensor assembly as described above in claims 1-7, and differs from claims 8 and 9 in that Höfelsauer does not specifically disclose a magnetic shield. However, Katsuya et al discloses such magnetic shield (100 in Fig. 1, 132 in Fig. 3 and 142 in Fig. 4) to protect the sensor (118) from sensing external magnetic field (see abstract and English translation). And, Sasaki in Figs. 3-5 discloses attaching magnetic shield (e.g., 50, 51, etc.) to the sensor (30) or sensor housing (40) for limiting sensing area to the sensor for a more accurate sensing device (col. 4, lines 28-61). Thus, it would have been obvious to an ordinary person skilled in the art at the time of the invention was made to provide magnetic shield to the sensor inside the seat buckle of Höfelsauer with the teaching of Katsuya et al or Sasaki for a more accurate sensing device due to less or no external magnetic interference field to the sensor.

**Regarding claim 10**, Höfelsauer does not disclose a screw through the shield, the sensor housing and engaged with the buckle. However, securing the housings to the buckle with a screw or other attaching/mounting means is merely a matter of engineering design choice and therefore an obvious modification to the apparatus of Höfelsauer for a simple

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installation process. In addition, Sasaki in col. 4, lines 50-61 teaches that the shield can be in different forms with different fixing means.

15. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barceló (GB 2385630 A) in view of Katsuya et al. (JP 2001-224408) or Sasaki (US 4,943,087).

Barceló discloses a seat buckle sensor assembly (70, see Fig. 2) comprising: a sensor housing (71) comprising a Hall Effect sensor (80, see the last two lines on page 9); and a seat buckle (Fig. 1). Barceló does not disclose a magnetic shield secured to the sensor housing by a snap fit. However, as described above, Katsuya et al. disclose such magnetic shield (100, 132 and 142) and such provision is an obvious modification to the apparatus of Barceló for a more accurate sensing device due to the reduced/limited or eliminated external interference magnetic field as well as the focused sensing area to the sensor. And, Sasaki in Figs. 3-5 discloses attaching magnetic shield (e.g., 50, 51, etc.) to the sensor (30) or sensor housing (40) for limiting sensing area to the sensor for a more accurate sensing device and the shield can be different forms with different fixing means (see col. 4, lines 28-61). The snap fit mounting/attaching means between housings is clearly taught by Barceló to avoid modification to the existing buckle (see abstract and third paragraph on page 11). Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention was made to provide a snap fit magnetic shield to the sensor housing of Barceló with the teaching of Katsuya et al or Sasaki for a simple installation, less cost and more accurate seat buckle sensor assembly.



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*Conclusion*

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamaguchi et al. (US 6,381,815 B1) and Furukawa et al. (US 6,329,893 B1) are cited to show a seat buckle sensor assembly (17) for sensing the movement/positions of the lock pin.

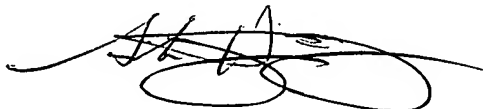
Do (US 6,729,427 B1) is cited to show a seat buckle sensor assembly 30, see Fig. 4.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sihong Huang whose telephone number is 571-272-2958. The examiner can normally be reached on Mon & Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on 571-272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sihong Huang  
June 10, 2005

A handwritten signature in black ink, appearing to be 'Sihong Huang', written over a horizontal line.